FOCUSED SITE INSPECTION PRIORITIZATION
SITE EVALUATION REPORT

FORD MOTOR COMPANY - OHIO TRUCK PLANT
650 MILLER ROAD
AVON LAKE, LORAIN COUNTY, OHIO

EPA ID NO. OHD 020 626 669

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Site Assessment Section
77 West Jackson Boulevard
Chicago, IL 60604

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1.0 INTRODUCTION

Under Contract No.68-W8-0084, Work Assignment No. 35-5JZZ, PRC Environmental Management, Inc. (PRC), has evaluated the Ford Motor Company - Ohio Truck Plant (Ford) site in Avon Lake, Lorain County, Ohio, as a potential candidate for the National Priorities List (NPL) and has prepared this site evaluation report. Using the Hazard Ranking System (HRS), PRC performed focused site inspection prioritization (FSIP) activities for the site to determine whether, or to what extent, it poses a threat to human health and the environment. This report presents the results of PRC's evaluation and summarizes the site conditions and targets pertinent to the migration and exposure pathways associated with the site. Information was obtained from the following sources: Ohio Environmental Protection Agency (OEPA), Ohio Department of Natural Resources (ODNR) and U.S. Environmental Protection Agency (EPA) Region 5 site files; a preliminary assessment (PA) report for the Ford site prepared by OEPA; the screening site inspection (SSI) report for the Ford site prepared by the EPA field investigation team (FIT); and the logbook notes and other information obtained during the site reconnaissance inspection conducted by PRC on May 24, 1995.

This report has five sections, including this introduction. Section 2.0 describes the site and provides a brief site history. Section 3.0 provides information about previous investigations conducted at the site. Section 4.0 provides information about the four migration and exposure pathways (groundwater migration, surface water migration, soil exposure, and air migration) that can be scored. Section 5.0 summarizes conditions at the site. References used in the preparation of this report are listed at the end of the text. In addition, the appendix to this report contains a photograph taken during the site reconnaissance.

2.0 SITE DESCRIPTION AND HISTORY

The Ford site is located at 650 Miller Road in Avon Lake, Lorain County, Ohio (latitude 41°29'15"N and longitude 82°03'45"W). The 237-acre site is surrounded by a mixed-use residential, industrial, commercial, and agricultural area 0.5 mile south of Lake Erie. The site is bordered on the north by Walker Road and commercial and residential property, on the east by Miller Road and commercial and industrial property, on the south by Norfolk and Western railroad tracks and agricultural property, and

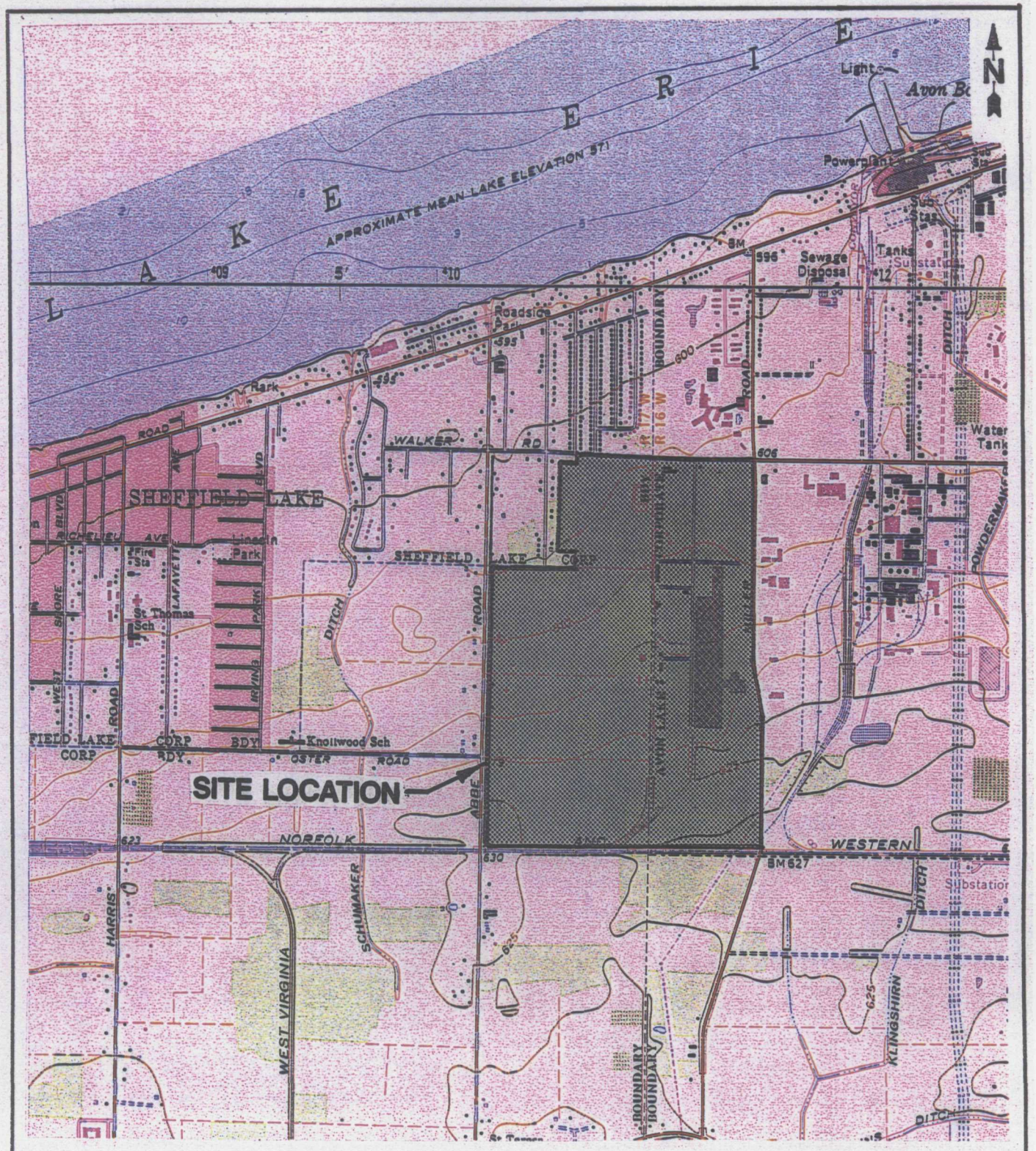
on the west by Abbe Road and industrial and agricultural property (PRC 1995; USGS 1979). The site's location is shown in Figure 1.

The site consists of one main production building in which all site operations occur. The site is completely surrounded by a chain-link fence. On-site access is controlled by the fence and 24-hour security stationed at the main entrance and throughout the site. Other site features include the following: (1) a 774,400-square-foot, unlined stormwater retention pond that was used from 1975 to 1985 and that is located in the northeast corner of the site; (2) the current, unlined stormwater retention pond west of the main production building; (3) two former sludge accumulation basins ;located due north of the main production building in the area currently occupied by the wastewater treatment plant (WWTP) (see Photograph No. 1); (4) parking areas located on the southern portion of the site; (5) a truck and rail loading area along the southern boundary of the site property; and (6) the paint basin consisting of two 12,000-gallon underground storage tanks (UST). The site's layout is shown in Figure 2.

From 1946 to 1975, Fruehauf Corporation (Fruehauf), a semitrailer manufacturer, occupied the site. In 1975, Ford Motor Company purchased the site from Fruehauf and began operations after a short period of construction and site modification (E&E 1991). Land use prior to 1946 is unknown.

From 1975 to date, the Ford site has been used for phosphating, painting, and assembling trucks and vans. Two lines of vehicles are finished at this site: the Econoline™ van and the Villager™ minivan. Ford's facility at the site is regulated as a large-quantity generator of hazardous waste under the Resource Conservation and Recovery Act (RCRA). Ford does not manufacture vehicles on site. Phosphating, painting, and assembly are performed on parts received from other Ford plants. These three on-site operations are described below.

Ford's phosphating operation uses a series of large, aboveground tanks in which parts are dipped. Included in the operation are a series of tanks consisting of a wash, rinse, chromic acid etch, and phosphate solution. Wastes generated during this operation include spent baths containing a 20 percent phosphate solution, filters, and filter cake. Spent filters generated during phosphate bath recirculation and associated filter cakes are stored in 20-cubic-yard roll-off containers for less than 90 days prior to

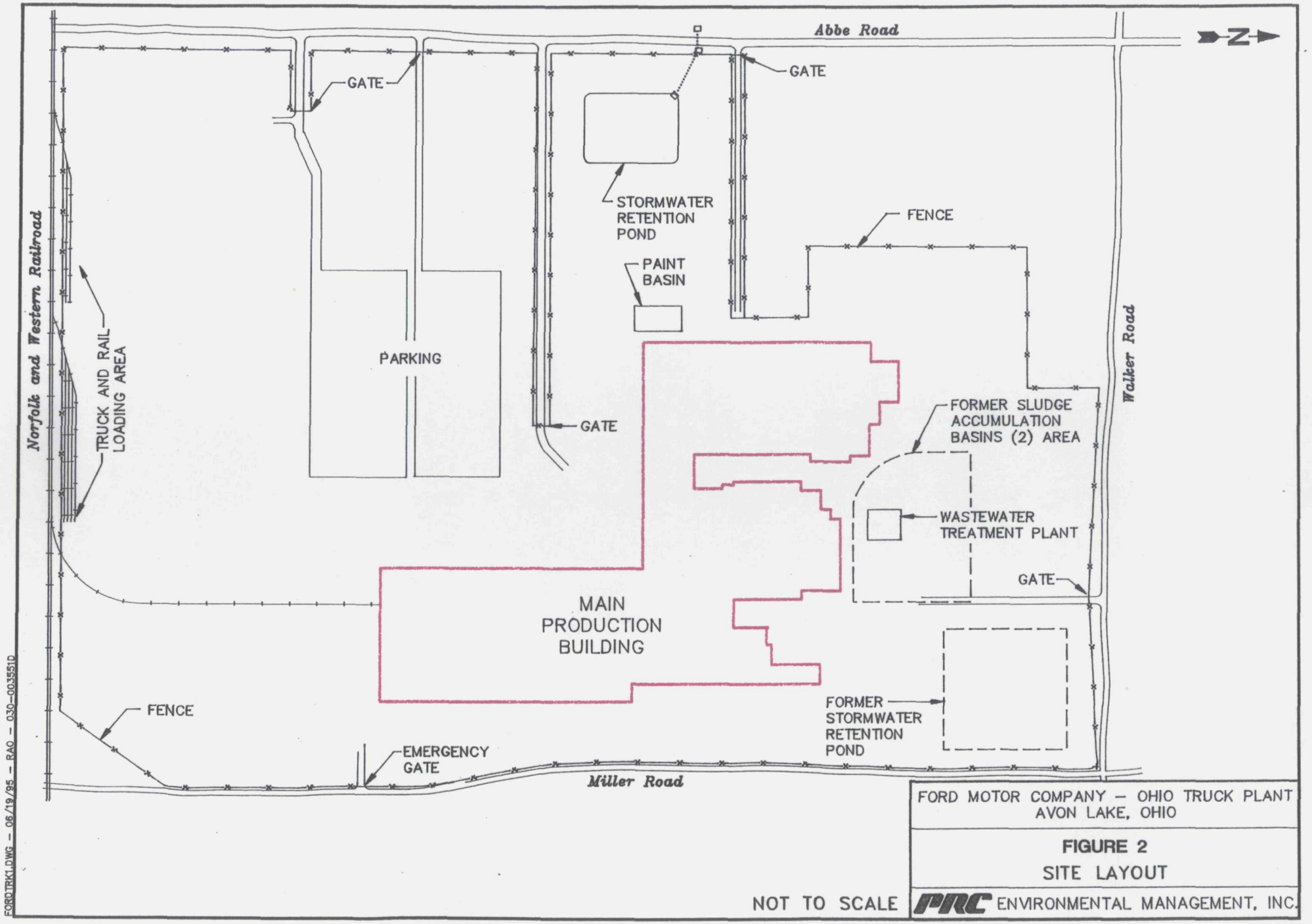


SOURCE: MODIFIED FROM USGS, AVON, OHIO, QUADRANGLE, 1979

FORD MOTOR COMPANY – OHIO TRUCK PLANT
AVON LAKE, OHIO

FIGURE 1
SITE LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC.



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NOT TO SCALE

FORD MOTOR COMPANY – OHIO TRUCK PLANT
AVON LAKE, OHIO

FIGURE 2

SITE LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

off-site disposal as a hazardous waste (waste code D008). Spent baths, along with other Ford process wastewater, flows to a wetwell where it is pumped to four 50,000-gallon batch treatment tanks where treatment begins.

Treatment consists of pH adjustment, flocculation, separation of metal hydroxides out of solution, and discharge. The final coating line includes E-Coat™, which is used for rust prevention. E-Coat™ is applied in a similar fashion as the phosphate solutions, and similar wastes are generated. The E-Coat™ line is used less frequently than the phosphating line. After coating, the parts are sent through a drying oven equipped with an afterburner (PRC 1995).

The painting operation uses two robotic primer booths and three enamel lines. Paint booths primarily use water filtration systems in which overspray is collected in a continually recirculated water stream. The water is recirculated until it is deemed unusable. The spent water/paint solution is currently directed to the WWTP. Purge solvents are used to clean painting lines. Spent purge solvents and waste paint are collected in two 12,000-gallon USTs prior to off-site disposal (D001, D005, D007, D035, F003, and F005). Both USTs have double walls and leak detection systems (PRC 1995).

Assembly is the final operation prior to off-site shipment of the final vehicles. All wastes generated during assembly operations are stored on-site in containers and tanks for less than 90 days prior to off-site disposal. These wastes include waste wax (a naphtha blend), miscellaneous coatings, waste primer for windshield installation, waste gasoline, and waste windshield solvent (various waste codes) (PRC 1995).

From fall 1975 to 1985, two on-site, concrete-lined, sludge accumulation basins were used to treat and store sludge generated during WWTP operations. In 1981, Ford submitted a RCRA Part A permit application for its sludge generation, which, at that time, was a RCRA-listed waste (F018). Three months later, Ford requested withdrawal of its RCRA permit application because EPA deleted RCRA waste code F018 from its listing. The permit withdrawal was granted by EPA (E&E 1991).

In 1985, improvements, including the addition of a filter press, were made to the WWTP, making use of the sludge accumulation basins unnecessary. In 1985 and 1986, the sludge accumulation basins ceased operations and were closed. Ford removed the concrete structures and repaved the entire area.

In July 1985, EPA sent Ford an information request letter regarding the closure of the two lagoons. Ford successfully demonstrated in its response that the two basins were not ever considered "land disposal units," and, therefore, did not have to undergo formal RCRA closure (Ford 1985). Currently, the WWTP exists over a portion of the former sludge accumulation basin area.

Ford has a wastewater discharge permit granted by the Municipal Utilities Department of Avon Lake, Ohio. The permit allows Ford to discharge WWTP effluent into the city's sewer system. The effluent is monitored either monthly, bimonthly, or quarterly, depending on the constituent (several metals, cyanide, or total toxic organics) being monitored. Several exceedences have been documented; however, according to the municipality, no major or recurring problems have been documented (ALMUD 1991). In addition, Ford has several air operating permits. Only isolated incidences of air permit exceedances have been documented.

In 1979, the following three spills occurred at the Ford site: (1) on April 24, 30 gallons of hydraulic fluid spilled from a 55-gallon drum; (2) on July 13, 200 gallons of E-Coat™ resin overflowed from a tank when a supplier was filling the tank with product; and (3) on August 9, an unknown amount of petroleum naphtha resin overflowed from a tank when a supplier was filling the tank with product. Most of the spilled material in each case was recovered; however, some material from the first two spills did migrate to the city storm sewer. Ford notified OEPA about each of the spills. After these spills occurred, Ford developed a pollutant spill prevention plan for the site that, to date, has been modified on an as-needed basis. The only recently documented spill was a 1992 spill of waste paint. The valve of the waste paint UST malfunctioned, allowing about 200 gallons of material to spill onto the paved filling area and adjacent grassy area. Most of the material was recovered and a contractor was hired to assist in contaminated soil removal. No off-site release problems were documented (E&E 1991; PRC 1995).

3.0 PREVIOUS INVESTIGATIONS

OEPA conducted a PA at the Ford site and prepared a PA report dated May 9, 1985 (OEPA 1985). Based on the findings of this PA, EPA's FIT conducted an SSI at the site in February 1991, and prepared a report dated October 18, 1991 (E&E 1991). During the SSI, nine soil samples were collected. Sample S8 was collected as a potential background sample and was collected from an area

west of the northern portion of the main production building. Analytical results revealed elevated concentrations of cadmium in sample S1, collected 3 feet bgs in the southeastern edge of the former stormwater retention pond. In addition, potentially elevated concentrations of semivolatile organic compounds (SVOC) were detected in soil samples S4 through S7, collected throughout the site. However, because the analytical data for the SVOCs was qualified, only the cadmium results will be evaluated for purposes of this report. The analytical results obtained for these soil samples and a figure showing the sampling locations are included in the attachment. No surface water, sediment, or groundwater samples were collected during the SSI (E&E 1991).

4.0 MIGRATION AND EXPOSURE PATHWAYS

This section describes the four migration and exposure pathways associated with the Ford site. Section 4.1 discusses the groundwater migration pathway; Section 4.2 discusses the surface water migration pathway; Section 4.3 discusses the soil exposure pathway; and Section 4.4 discusses the air migration pathway.

4.1 GROUNDWATER MIGRATION PATHWAY

This section discusses geology and soils, groundwater releases, and targets associated with the groundwater migration pathway at the site.

4.1.1 Geology and Soils

The Ford site lies on glaciated, nearly level soils classified as Miller silty clay loam (USDA 1976). This soil is located in large, flat areas of the lake plain and in sluggish drainageways and pot holes on the till plain. The Miller series consists of very poorly drained, dark-colored, nearly level soils in depressions and drainageways throughout Lorain County. These soils formed in moderately fine textured and fine textured glacial till (USDA 1976).

Well logs for area residential wells reveal the following subsurface areas: (1) a layer of clay from 0 to 5 feet below ground surface (bgs); (2) a layer of light shale from 5 to 14 feet bgs; and (3) a layer of dark shale from 14 to 61 feet bgs. These substratums are of the Devonian Period. Area well logs

indicate that private wells in the site area draw water from the shale bedrock. Well logs do not indicate that a continuous confining layer exists within a 4-mile radius of the site. In general, wells developed in the vicinity of the site have a relatively low yield (1 to 3 gallons per minute) and are used primarily for watering lawns due to the groundwater's high sulphur content. The depth to groundwater in the vicinity of the site is about 20 to 40 feet bgs in the shale deposits (ODNR 1989). In addition, a perched saturated zone is found at depths of 1 to 10 feet bgs. Based on local topography, groundwater flow in the shale deposits is assumed to be north toward Lake Erie (E&E 1991).

4.1.2 Groundwater Releases

No groundwater samples were collected during the SSI (E&E 1991). Although on-site borings for potential wells were excavated by Fruehauf in 1972, no wells were completed because of the lack of usable water in the borings (ODNR 1989). It is, therefore, difficult to determine if a release to groundwater has occurred at the Ford site. A potential, however, exists for cadmium detected in the soil sample discussed in Section 3.0 to leach from soil to groundwater, which is first encountered in perched groundwater at depths of less than 10 feet bgs (ODNR 1989).

4.1.3 Targets

The residents of Avon Lake obtain drinking water primarily from the Avon Lake Water Department (ALWD). ALWD obtains its water from an intake on Lake Erie about 2.5 miles north of the Ford site. A total of 32,645 people reside within a 4-mile radius of the site. Of this population, a total of 143 residents obtain drinking water from private wells. Remaining residents receive water from the ALWD intake on Lake Erie or surrounding municipal water departments (Frost 1995; E&E 1991). The nearest residential well is located 0.25 to 0.5 mile from the site (Frost 1995). Groundwater yield is not significant enough to produce water for industrial, commercial, or agricultural resources (E&E 1991). No wellhead protection area is present in Avon Lake, Ohio.

4.2 SURFACE WATER MIGRATION PATHWAY

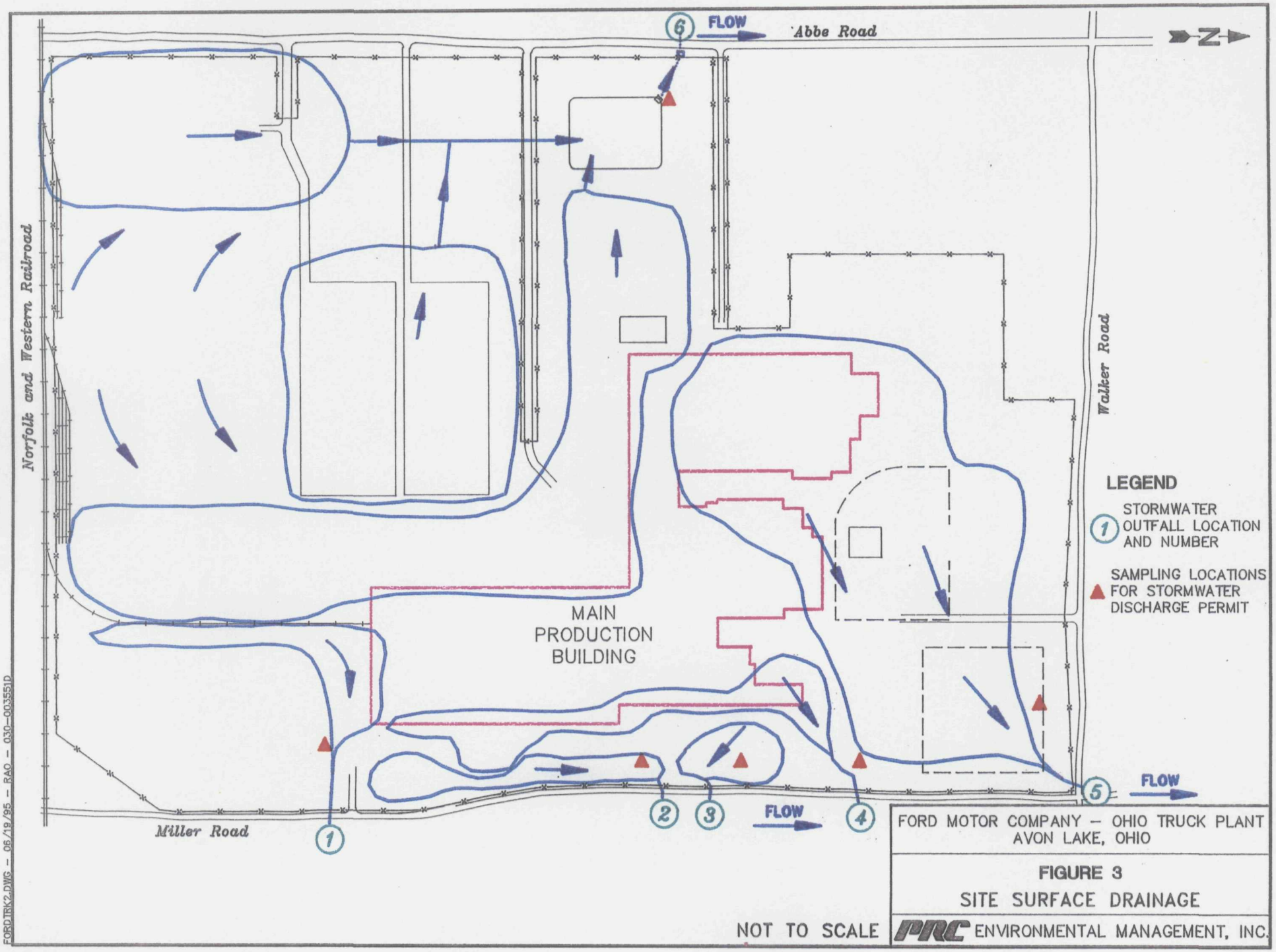
No surface water or sediment samples have been collected from the Ford site. No documentation exists that could be used to determine whether a release has occurred from the site to surface water. The nearest surface water body is Lake Erie, which is located about 0.5 mile north of the site. All site surface water runoff drains either to one of five stormwater drains located in the eastern portion of the site or to the stormwater retention pond located west of the main production building. The stormwater retention pond discharges to stormwater outfall 6. Figure 3 shows stormwater surface drainage patterns for the Ford site. All six outfalls are monitored and regulated under a stormwater discharge permit (PRC 1995). The Ford site is not located in the 100-year flood plain of any area surface water bodies (E&E 1991).

4.3 SOIL EXPOSURE PATHWAY

A release of cadmium to on-site surface soils has been documented at the Ford site. During the SSI, cadmium was detected (1.3 parts per million) in soil sample S1 collected from 3 feet bgs near the southeastern edge of the former stormwater retention pond. This pond was unlined while in operation and was closed in 1985. Ford currently utilizes the clay-lined stormwater retention pond west of the main production building (see Figure 2). During the SSI, one potential background sample was collected from west of the northern portion of the main production building. To date, this area has not been used by Ford. Cadmium was not detected in this soil sample (E&E 1991).

No schools, daycare facilities, or residences exist within 200 feet of the former stormwater retention pond. A population of 2,040 resides within 1 mile of the site (Frost 1995; USGS 1979).

Ford employs about 3,600 people that operate two shifts per day, 5 days per week. The site is completely fenced. The main entrance is monitored by 24-hour security. All other access points are controlled by locked gate. No terrestrial sensitive environments are located within 1 mile of the site (PRC 1995); however, the Indiana bat and the bald eagle are listed endangered species in Lorain County, Ohio (DOI 1994).



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4.4 AIR MIGRATION PATHWAY

No release of hazardous constituents from the site to the air migration pathway has been documented. During the SSI, EPA's FIT site entry equipment did not detect levels that deviated from background levels at the Ford site. A total of 3,600 workers are employed at the site two shifts per day, five shifts per week. No wetlands or sensitive environments exist within one mile of the site (DOI 1977; PRC 1995; E&E 1991). The Ford site does have several air operating permits. To date, only isolated incidences of permit exceedances have been documented.

5.0 SUMMARY

The primary pathway affecting the potential for hazardous constituent migration from the Ford site is the groundwater pathway; however, no documentation exists to verify if an observed release to this pathway has occurred. During the SSI, no groundwater samples were collected. Cadmium was detected in sample S1 collected 3 feet bgs in the area of the former stormwater retention pond. No other unqualified target analyte list (TAL) or target compound list (TCL) constituents were detected above background.

Groundwater in the vicinity of the Ford site occurs in the lacustrine (clay) and bedrock (shale) formations. Subsurface geology indicates a thin layer of clay underlain by about 50 feet of shale. Groundwater is present at depths of 20 to 40 feet bgs; perched water is present in the lacustrine clay at depths less than 10 feet. Well logs do not indicate that a continuous confining layer exists within a 4-mile radius of the site. In general, wells developed in the site area have a relatively low yield (1 to 3 gallons per minute) and are used primarily for watering lawns. Residents within a 4-mile radius of the Ford site primarily obtain their drinking water from municipal water sources that obtain water from Lake Erie. The total number of individuals within a 4-mile radius of the site is 32,645. A total of 143 individuals within a 4-mile radius of the site obtain water from private wells. The other migration and exposure pathways do not contribute significantly to the potential for hazardous constituent migration from the Ford site.

REFERENCES

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Frost Associates (Frost). 1995. CENTRACTS Report for the Ford Site. October 18.

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U.S. Department of Agriculture (USDA). 1976. *Soil Survey of Lorain County, Ohio*. March.

U.S. Department of the Interior (DOI). 1977. National Wetlands Inventory Map of Avon Lake, Ohio. Fish and Wildlife Services. March.

DOI. 1994. *Federally Listed Endangered, Threatened & Proposed Species*; Ohio. April 4.

U.S. Geological Survey (USGS). 1979. 7.5-Minute Series Topographic Map of Avon Lake, Ohio, Quadrangle.

APPENDIX

SITE RECONNAISSANCE PHOTOGRAPH
FORD MOTOR COMPANY - OHIO TRUCK PLANT
AVON LAKE, LORAIN COUNTY, OHIO

(One Page)

Photograph No. 1 Location: Former Sludge Accumulation Basins
Orientation: West Date: 05/24/95
Description: Location of two former sludge accumulation basins; basins were closed in 1985 and 1986; site wastewater treatment plant currently occupies area

ATTACHMENT

SCREENING SITE INVESTIGATION SOIL SAMPLING LOCATIONS AND ANALYTICAL RESULTS

FORD MOTOR COMPANY - OHIO TRUCK PLANT
AVON LAKE, LORAIN COUNTY, OHIO

(Three Pages)

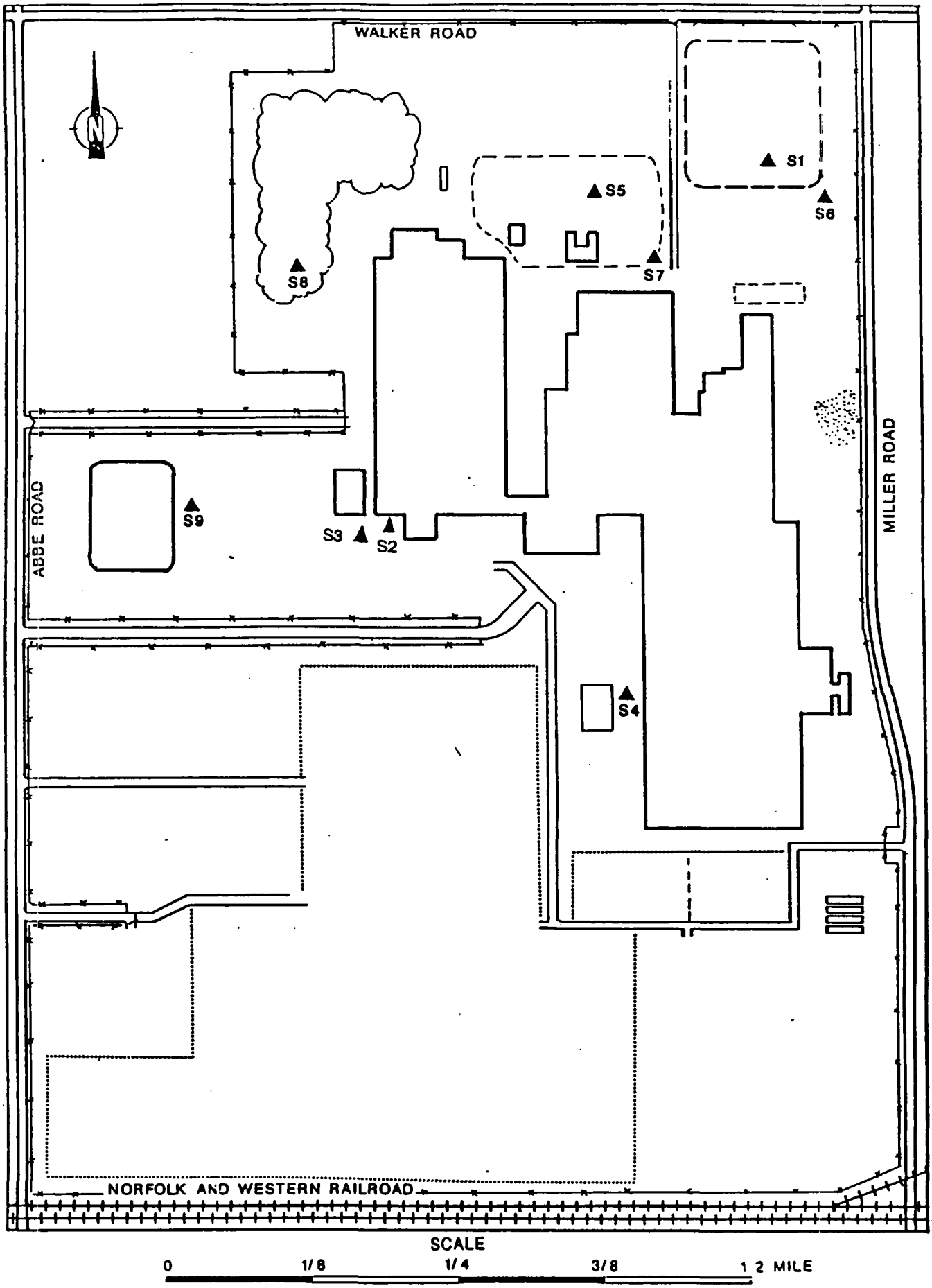

FIGURE 3-2 SOIL SAMPLING LOCATIONS

Table 4-1
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED SOIL SAMPLES
FOR THE FMC SITE SSI

Sample Collection Information and Parameters	S1	S2	S3	S4	S5	S6	S7	S8	S9
Date	02/28/91	02/28/91	02/28/91	02/28/91	02/28/91	02/28/91	02/28/91	02/28/91	02/28/91
Time	1210	1230	1230	1310	1415	1445	1450	1505	1530
CLP Organic Traffic Report Number	EMW72	EMW73	EMW74	EMW75	EMW76	EMW77	EMW78	EMW79	EMW80
CLP Inorganic Traffic Report Number	MEMW58	MEMW59	MEMW60	MEMW61	MEMW62	MEMW63	MEMW64	MEMW65	MEMW66
Compound Detected (values in ug/kg)									
Volatile Organics									
methylene chloride	—	—	—	9 J	25 J	—	11 J	12 J	9 J
acetone	130 J	12 J	—	—	—	—	—	—	—
carbon disulfide	2 J	—	—	—	—	—	—	—	14 J
chloroform	—	—	2 J	—	1 J	—	—	—	—
1,1,1-trichloroethane	—	2 J	—	—	—	—	—	—	—
benzene	2 J	—	—	—	—	—	—	—	—
toluene	3 J	15 J	—	—	7 J	—	—	4 J	—
ethylbenzene	—	—	—	—	—	—	—	26 J	—
xylenes (total)	—	—	—	—	12 J	—	—	—	—
Semivolatile Organics									
2-methylnaphthalene	—	—	—	—	130 J	—	—	—	—
phenanthrene	—	—	—	230 J	92 J	130 J	250 J	—	—
fluoranthene	—	—	—	550 J	400 J	200 J	550 J	—	—
pyrene	—	—	—	440 J	310 J	160 J	470 J	—	—
benzo[a]anthracene	—	—	—	260 J	140 J	—	260 J	—	—
chrysene	—	—	—	290 J	160 J	—	330 J	—	—
benzo[b]fluoranthene	—	—	—	210 J	110 J	—	240 J	—	89 J
benzo[k]fluoranthene	—	—	—	340 J	120 J	—	230 J	—	100 J
benzo[a]pyrene	—	—	—	240 J	91 J	—	200 J	—	—
indeno[1,2,3-cd]pyrene	—	—	—	160 J	—	—	110 J	—	—
benzo[g,h,i]perylene	—	—	—	170 J	—	—	100 J	—	—
Pesticides/PCBs									
4,4'-DDE	—	—	130J	—	—	—	—	—	8.4 J
4,4'-DDD	—	—	59J	—	—	—	—	—	25 J

— Not detected.

Table 4-1 (Cont.)

Sample Collection Information and Parameters	S1	S2	S3	S4	S5	S6	S7	S8	S9
Analyte Detected (values in mg/kg)									
aluminum	24,300	19,400	26,800	21,900	18,300	24,200	17,600	19,800	20,500
antimony	R	9.7 BNJ	R	R	R	13.6 BNJ	R	R	R
arsenic	7.8 N*J	7.9 N*J	7.6 Ns*J	31.1 N*J	10.7 Ns*J	11.1 Ns*J	9.1 N*J	11.4 N*J	9.1Ns*J
barium	174	125	132	124	76.5	167	94.9	97.3	116
beryllium	2.3	0.98 B	1.4	1.1 B	1.5	2.3	1.7	1.4	1.4
cadmium	1.3	—	—	—	0.95 B	—	—	—	—
calcium	50,800 *J	51,800 *J	6,460 *J	11,800 *J	18,100*J	67,600 *J	20,700 *J	5,410 *J	25,700 *J
chromium	32.0	28.3	29.5	33.4	32.6	34.4	25.4	28.2	28.5
cobalt	13.2	12.7	7.8 B	12.1	11.4 B	12.4 B	15.2	12.3 B	10.3 B
copper	41.4	28.5	26.4	26.5	31.1	27.0	23.3	27.3	22.1
iron	36,900	29,600	22,500	31,300	29,400	29,300	45,400	34,000	28,600
lead	11.4 *J	21.3 s*J	23.6 s*J	29.2 *J	11.0 s*J	33.7 *J	15.0 *J	17.7 *J	25.8 s*J
magnesium	10,700	17,100	4,200	8,660	6,190	14,600	7,220	5,400	5,570
manganese	1,700 N*J	418 N*J	189 N*J	389 N*J	569 N*J	2,830 N*J	755 N*J	279 N*J	416 N*J
nickel	34.3	37.0	29.2	53.5	39.7	33.0	33.7	42.1	26.8
potassium	3,880 *	5,730 *	3,320 *	3,910 *	4,660 *	3,980 *	3,490 *	3,610 *	3,790 *
selenium	1.7 NsJ	—	—	—	3.9 NsJ	1.9 NsJ	—	—	—
sodium	385 B	396 B	198 B	203 B	226 B	454 B	202 B	—	—
thallium	—	—	—	—	1.5 B	—	—	—	—
vanadium	56.8 *	50.6 *	49.0 *	47.9 *	113 *	50.5 *	48.0 *	46.4 *	39.6 *
zinc	233	74.5	62.1	122	107	95.6	98.9	104	94.1

— Not detected.

COMPOUND QUALIFIER	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
s	Analysis by Method of Standard Additions.	Value is quantitative.
N	Spike recoveries outside QC protocols, which indicates a possible matrix problem. Data may be biased high or low. See spike results and laboratory narrative.	Value may be quantitative or semi-quantitative.
*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be quantitative or semiquantitative.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
R	Results are unusable due to a major violation of QC protocols.	Analyte value is not usable.